Bing

An **I-beam**, also known as an **H-beam**, is a common structural steel shape used in construction. It gets its name because its cross-section resembles the capital letter "I." Let's delve into some details:

1. **Shape and Purpose**:
   - The I-beam consists of two horizontal elements called **flanges** and a vertical element known as the **web**.
   - The web resists shear forces, while the flanges handle most of the bending moment experienced by the beam[3].
   - These beams are widely used in construction when substantial load-bearing support is required. They can be used horizontally or as columns in buildings, bridges, trailers, and platforms[1].
2. **Types of I-Beams**:
   - **Wide Flange Steel Beam (H Beam)**: This configuration has non-tapered flanges, providing added horizontal strength. It's ideal for skyscrapers, house beams, and other large structures.
   - **Standard American Beams (S Beams)**: These have tapered flanges, offering extra strength when loads concentrate on the flanges (e.g., machine bases, hoists, or garage trolley beams)[1].
3. **Specifications**:
   - **Material**: Structural steel (commonly ASTM A992/A572-50 Grade 50).
   - **Finish**: Mill finish with a slightly grainy texture.
   - **Workability**: Excellent for welding, good for machining/grinding, fair for bending/forming, and fair wear resistance.
   - **Mechanical Properties**: Tensile strength of 65,000 psi, yield point of 50,000 - 65,000 psi, and 21% elongation in 2 inches.
   - **Available Lengths**: 5ft, 10ft, 20ft, 25ft, or cut to size[1].
4. **Sample Sizes**:
   - **Standard Steel I-Beams**:
     - 3" x 5.7# (3.00" x .170" x 2.33") - A36/A572-50 Standard Steel I Beam
     - 3" x 7.5# (3.00" x .349" x 2.509") - A36/A572-50 Standard Steel I Beam
     - 4" x 7.7 lb (4.00" x .193" x 2.663") - A36/A572-50 Standard Steel I Beam

        - 4" x 9.5 lb (4.00" x .326" x 2.796") - A36/A572-50 Standard Steel I Beam
    - **Wide Flange Steel Beams**:
        - 4" x 13 lb (4.16" x .280" x 4.06") - A572/A992 Wide Flange Steel Beam
        - 5" x 10 lb (5.00" x .214" x 3.004") - A36/A572-50 Standard Steel I Beam
        - 5" x 16 lb (5.01" x .240" x 5.00") - A572/A992 Wide Flange Steel Beam
        - 5" x 19 lb (5.15" x .270 x 5.03") - A572/A992 Wide Flange Steel Beam
        - 6" x 4.4 lb (6.00" x .114" x 1.844") - A529-50 Steel Junior Beam
        - 6" x 9 lb (5.90" x .170" x 3.94") - A572/A992 Wide Flange Steel Beam
        - 6" x 12 lb (6.03" x .230" x 4.00") - A572/A992 Wide Flange Steel Beam
        - 6" x 12.5 lb (6.00" x .232" x 3.332") - A36/A572-50 Standard Steel I Beam[1]

These sturdy I-beams play a crucial role in supporting large structures and ensuring their stability. .

Source(s)

1. I-beam - Wikipedia
2. Metals Depot® - Buy Steel Beams Online!
3. Red Iron Buildings: Kit Cost & Fast Pricing | General Steel
4. Structural Steel I Beams- Everything You Ever Wanted To Know
5. Prime Standard Steel I-Beam Supplier | Texas Iron & Metal
6. Getty Images